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BEFORE THE BOARD OF PATENT APPEALS

AND INTERFERENCES

Paper No. 23

Application Number: 08/770,381

Filing Date: 03 December 1996

Appellant(s): Kessler et al.

Nelson A Blish

For Appellant

EXAMINER'S ANSWER

This is in response to appellant's brief on appeal filed January 24, 2001.

(1) Real Party in Interest

A statement identifying the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The brief does not contain a statement identifying the related appeals and interferences which will directly affect or be directly affected by or have a bearing on the decision in the pending appeal is contained in the brief. Therefore, it is presumed that there are none. The Board, however, may exercise its discretion to require an explicit statement as to the eexistenceof any related appeals and interferences.

(3) Status of Claims

The statement of the status of the claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Invention

The summary of invention contained in the brief is correct.

(6) Issues

The appellant's statement of the issues in the brief is correct.

(7) Grouping of Claims

Appellant's brief includes a statement that claims 1, 10, 11, 12, and 15 do not stand or fall together and provides reasons as set forth in 37 CFR 1.192(c)(7) and (c)(8).

The rejection of claims 4, 5, and 17 stand or fall together because appellant's brief does not include a statement that this grouping of claims does not stand or fall together and reasons in support thereof. See 37 CFR 1.192(c)(7).

(8) Claims Appealed

The copy of the appealed claims contained in the Appendix to the brief is correct.

(9) Prior Art of Record

The following is a listing of the prior art of record relied upon in the rejection of claims under appeal.

5,579,420	Fukushima	11-1996
5,646,339	Fukushima et al.	07-1997
5,715,085	Takatori et al.	02-1998
3,784,734	Watanabe et al.	01-1974
4,575,193	Greivenkamp, Jr.	03-1986

(11) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claims 1, 10, 11, 12 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Greivenkamp, Jr. '193 and Fukushima (U.S. 5,579,420).

Regarding Claim 1, Greivenkamp, Jr. '193 teaches an imaging apparatus for generating an image signal from incident light with higher spatial frequencies of the incident light limited to reduce undersampling artifacts comprising an image sensor for generating the image signal from an array of photosites, and an optical section having a birefringent uniaxial crystal spatial filter, having a first and second plane plate 16 and 20, interposed in a path of the incident light to produce a blurred image on the photosites (col. 1, lines 40-55; col. 3, lines 50-65). Greivenkamp, Jr. '193 further discloses that by blurring the version of the original image, the spatial resolution is (limited) reduced (col. 1, lines 45-48; also col. 3, lines 61- col. 4, line 5). This teaches that a portion of the high spatial frequency is removed to produce the blurred image on the photosites. However, Greivenkamp, Jr. '193 fails to disclose the birefringent uniaxial crystal optical filter birefringence is greater than 0.05 and being made of lithium niobate.

Fukushima '420 teaches an optical filter formed of birefringent crystal such as lithium niobate (col. 5, lines 1-5). Lithium niobate has a birefringent value of 0.09, which is greater than 0.05. The strong wavelength dependent characteristic of the polarization conversion resulting from the birefringent characteristic of lithium niobate makes the device useful in applications such as multiplexing and/or demultiplexing. Therefore, it would have been obvious to one of ordinary skill in the art to have the birefringent crystal optical filter to be made of lithium niobate which has a birefringence greater than 0.05.

Regarding Claim 10, Greivenkamp, Jr. '193 teaches the four spot rays (See Fig. 2a).

Regarding Claim 11, Greivenkamp, Jr. '193 teaches the optical section includes a lens and the optical filter is positioned between the lens and the photosites for blurring the image on the photosites (See Fig. 1; col. 3, lines 50-65; col. 1, lines 40-50).

Claim 12 is analyzed and discussed with respect to Claim 10 and 2. (See rejection of Claims 10 and 2 above.)

Regarding Claim 15, Greivenkamp, Jr. '193 teaches the second plate comprises a plane which is tilted at a 45^0 angle to a plane of the first plate (col. 4, lines 36-45).

Regarding Claim 18 (18), Greivenkamp, Jr. '193 teaches that the thickness of the first plate is not equal to the thickness of the second plate (see fig. 9a).

1. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Greivenkamp, Jr. '193 and Fukushima et al. (U.S. 5,646,399).

Greivenkamp, Jr. '193 teaches an imaging apparatus for generating an image signal from incident light with higher spatial frequencies of the incident light limited to reduce undersampling artifacts comprising an image sensor for generating the image signal from an array of photosites, and an optical section having a birefringent uniaxial crystal optical filter interposed in a path of the incident light to produce a blurred image on the photosites (col. 1, lines 40-55; col. 3, lines 50-65). Greivenkamp, Jr. '193 states that by blurring the version of the original image, the spatial resolution is (limited) reduced (col. 1, lines 45-48; also col. 3, lines 61- col. 4, line 5). This

teaches that a portion of the high spatial frequency is removed to produce the blurred image on the photosites. However, Greivenkamp, Jr. '193 fails to disclose the birefringent uniaxial crystal spatial filter is lithium tantalate.

Fukushima et al. '399 teaches that lithium Tantalate may be used as an optical birefringent crystal element (col. 8, lines 11-15) replacing the lithium niobate. Like lithium niobate, Fukushima et al. '399 teaches that lithium Tantalate may also be used to improve the mass productivity. Therefore, it would have been obvious to one of ordinary skill in the art to use lithium Tantalate as a birefringent uniaxial crystal spatial filter.

2. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Greivenkamp, Jr. '193 and Fukushima '420 as applied to claim 1 above, and further in view of Takatori et al. (U.S. 5,715,085).

Regarding Claim 5, neither Greivenkamp, Jr. '193 nor Fukushima '420 teaches an angle between an optical axis of the spatial filter and a line normal to a filter facet is 37.85^0. However Takatori et al. '085 teaches that the angle of the spatial filter with respect to the incident plane is set smaller than an angle of 45^0 (col. 1, lines 65-68). Takatori et al. '085 teaches that due to the fact that an angle of inclination of the optical axis of the spatial filter with respect to the incident plane is set about 35^0, which includes the angle 37.85^0, even when the angle of incidence of the incident light is great, variations of the separation width between an ordinary ray and an extraordinary ray are not great, that is, the characteristic of the spatial filter does not vary

according to the angles of incidence of the incident light (col. 2, lines 1-9). When an angle of incidence of an incident light ray into the incident plane is large, the separation width of the ray varies greatly (col. 1, lines 40-49). It would be advantageous to have the angle set below 45^0 and about 35^0 to prevent the generation of a false signal due to the width of the ray. Therefore, it would have been obvious to one of ordinary skill in the art wherein an angle between an optical axis of the spatial filter and a line normal to a filter facets is below 45^0 and about 35^0, which includes the angle 37.85^0.

3. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Greivenkamp, Jr. '193 and Fukushima '399, and further in view of Watanabe et al. (U.S. 3,784,734).

Regarding Claim 17(16), neither Greivenkamp, Jr. '193 nor Fukushima '399 teaches a thickness of the first plate is equal to a thickness of the second plate.

However, Watanabe et al. '734 discloses that the sheets (Fig. 20, elements 34a and 34b) are identical to each other (col. 10, lines 67-68). Watanabe et al. '734 teaches the thickness of the sheets (element 34a and 34b) creates a rhomboidal pattern of the four spot to be of 45^0 (col. 11, lines 54-62; see Fig. 22). By creating the thickness of the first plate to equal to a thickness of the second plate having the rhomboidal pattern of the rays, aids in producing color video signals which do not cause any moire in the reproduced picture. Therefore, it would have been obvious to one of ordinary skill in the art to have the thicknesses of the first and the second plate to be of equal value.

(13) Response to argument

The appellant first discusses, regarding Claim 1, that Greivenkamp, Jr. teaches a wave plate sandwiched between the birefringent elements. However, the number of elements is invalid, as long as the claimed limitation is met. In this case, Greivenkamp, Jr. teaches first and second plane plates used to bend incoming light.

Next the appellant argues the present invention does not remove wavelengths, but blurs certain high frequencies of the image. Greivenkamp, Jr discloses a birefringent uniaxial crystal spatial filter that removes wavelengths and performs spectral as well as spatial filtering (see fig. 2a). The examiner realizes that Greivenkamp, Jr may contain more functions as long as it teaches the claimed limitation of performing spatial filtering. It is also an advantage to further teach spectral filtering in which Fukushima '420 discloses a spectral filter. Both filters are essential for the purpose of blurring incoming light. Although Fukushima '420 teaches spectral filtering, this reference is used to teach that it is well known in the art to bend incoming light more efficiently using a lithium niobate filter, which would also have similar use in Greivenkamp, Jr for bending light spatially since Greivenkamp, Jr teaches spatial and spectral filtering as noted above. Therefore, the examiner strongly believes the combination of Greivenkamp, Jr and Fukushima '420 is proper. As for the argument regarding the shapes of the spatial filter consisting of fist and second plane plates, this limitation is shown in Greivenkamp, Jr. Although Fukushima '420 discloses wedge shaped plates, each plate is interpreted as having a plane with smooth sides.

Regarding Claim 4, the appellants argues that it would not have been obvious to use Fukushima '399 to teach lithium tantalate. However, Fukushima '399 teaches it would be easier to manufacture filters using lithium niobate for the purpose of bending light, and that it is well known in the art to use other substitutes such as lithium tantalate (col. 8, lines 11-15). Examples of these filters are shown in figures 8-11. Therefore, the examiner believes, for the same reasons stated above with respect to Claim 1, that Fukushima '399 teaching is properly combined with Greivenkamp, Jr.

Next the appellant argues Takatori has a different purpose of using an angle between an optical axis of the spatial filters and a line normal to a filter facet is 37.85^0. In response to this argument, the fact that applicant has recognized another advantage which would flow naturally from following the suggestion of the prior art cannot be the basis for patentability when the differences would otherwise be obvious. *Ex parte Obiaya*, 227 USPQ 58, 60 (Bd. Pat. App. & Inter. 1985). It is further noted that the purpose intended by the applicant is not a recited limitation in the claims.

Regarding the arguments for claim 17, the examiner does not understand the appellants discussion with respect to "rotated about an optical axis of the imaging apparatus". However, this limitation is not claimed in Claim 17.

4. Lastly, the appellant argues the Declaration of Prior Invention is sufficient to overcome the cited prior art. Although each document has different dates, only the predated documents are relevant for argument. With respect to these documents, the examiner understands them to be

supplied to prove that lithium niobate was purchased. However, there is no specific purpose of using these plates in the documents. As stated in previous office actions, the evidence submitted is insufficient to establish a conception of the invention prior to the effective date of the reference. While conception is the mental part of the inventive act, it must be capable of proof, such as by demonstrative evidence or by a complete disclosure to another. Conception is more than a vague idea of how to solve a problem. The requisite means themselves and their interaction must also be comprehended. See *Mergenthaler v. Scudder*, 1897 C.D. 724, 81 O.G. 1417 (D.C. Cir. 1897). Please see MPEP 715.02, which states the declaration must establish possession of the whole invention claimed. The declaration must disclose evidence of possession of the invention and not just of what one reference (in combination of applied references) happens to show.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

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02/20/01

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